

Hematodinium-like Disease of Dungeness Crabs

I. Causative Agent and Disease

Obligate parasitic dinoflagellates that belong to the genus *Hematodinium* sp. are in the protozoan phylum Alveolata, subphylum Dinoflagellida, order Syndinida and family Syndiniceae. A major feature of classification for all dinoflagellates is the biflagellated grooved dinospore stage. *Hematodinium* parasites have been described from several species of crustaceans, certain fishes and cephalopods. In crustaceans the type species is *H. perezii* parasitizing the European shore crab. All *Hematodinium* described from crustaceans parasitize the hemolymph causing systemic disease and mortality affecting at least 26 species of crustacean hosts in Europe, Australia and North America including many commercially important crab species and 13 species of benthic amphipods.

II. Host Species

A *Hematodinium*-like parasite was observed in a single captive subadult Dungeness crab collected from the waters of Kodiak Island, Alaska in mid-May of 2003. It is the only known case of dinoflagellate parasitism in the Dungeness crab on record in the Pacific Northwest.

III. Clinical Signs

Clinical signs include lethargy followed by death associated with milky white hemolymph and grossly abnormal viscera characterized by pallid color and a white viscous exudate.

IV. Transmission

The mode of transmission is unknown but likely complex (see bitter crab disease section) involving several

developmental stages if confirmed to be *Hematodinium* sp.

V. Diagnosis

Stained blood smears contain myriad numbers of apparent prespore stages, some of which have dinokaryon type condensed chromosomes in V-shaped configuration. Tissues were not available for further diagnostic analysis.

VI. Prognosis for Host

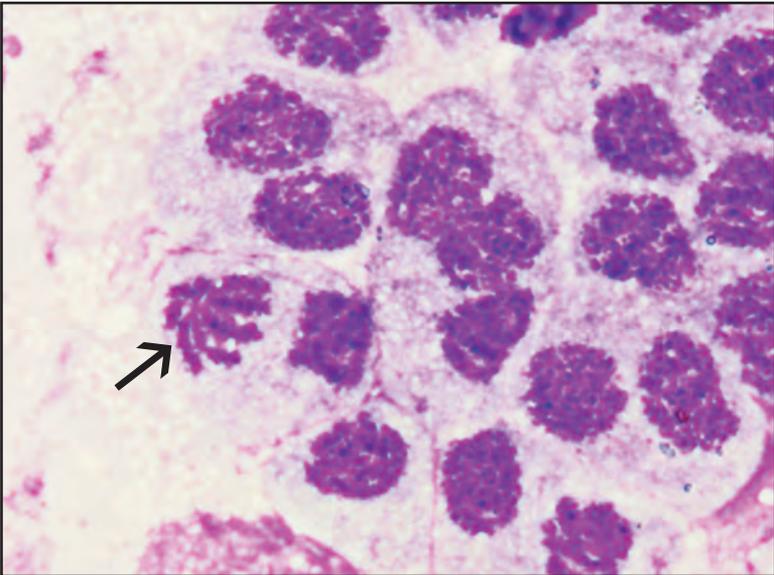
The single parasitized crab was one of several being held in crowded 10 foot circular tanks for a size at maturity study. Minor mortality, beginning in early July, occurred in the captive crab groups, some of which was due to stress-caused bacterial septicemia while other mortality was reportedly caused by this *Hematodinium*-like parasite.

VII. Human Health Significance

There are no zoonotic human health concerns regarding dinoflagellate parasitism in crabs. However, parasitized crabs often have an unpalatable flavor and undesirable meat texture.



Milky-white viscera and exudate of a Dungeness crab parasitized by a *Hematodinium*-like organism



Stained hemolymph smear of parasitized Dungeness crab showing *Hematodinium*-like prespores with dinokaryon type condensed chromosomes in V-shaped configuration (arrow)